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ABSTRACT

Many of the Association to Advance Collegiate Schools of Business (AACSB) accredited schools require undergraduate Management Information Systems (MIS) majors to take a course in the management of information technology. Over half of these schools utilize case studies in the teaching of this course. The authors emphasize that case studies are an important vehicle for teaching crucial information technology (IT) management issues, particularly in providing students with a real world example of organizational issues, and that case studies are best taught in an active, collaborative environment. Based upon the authors' understanding of collaborative learning and collaborative teaching, this paper proposes a procedure for enhancing the effectiveness of this active learning methodology, and discusses how this methodology has been implemented. The case studies questionnaire is appended. Includes three tables. (Contains 29 references.) (Author)

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TEACHING CASE STUDIES: A COLLABORATIVE APPROACH

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ABSTRACT

Many of the Association to Advance Collegiate Schools of Business (AACSB) accredited schools require undergraduates MIS majors to take a course in the management of information technology. Over half of these schools utilize case studies in the teaching of this course. We believe that case studies are an important vehicle for teaching crucial IT management issues, particularly in providing students with a real-world example of organizational issues, and that case studies are best taught in an active, collaborative environment. Based upon our understanding of collaborative learning and collaborative teaching, we propose a procedure for enhancing the effectiveness of this active learning methodology, and discuss how this methodology has been implemented.

COLLABORATIVE LEARNING

Collaborative learning is defined as a learning process emphasizing group or cooperative efforts among faculty and students, stressing active participation and interaction on the part of both students and instructors (Brufee, 1984). Collaborative learning has long been stressed as an effective teaching methodology by theorists (Vygotsky, 1978). A review of the literature of peer/collaborative learning can be found in McKeachie (1999).

The importance of collaborative learning extends to the business environment, particularly in the use of teams to accomplish business tasks. The effectiveness of using teams to accomplish information systems tasks in the business environment is well recognized (El-Shinnawy and Vinze, 1998; Janz, 1999). Surveys of employers indicate that teamwork skills are among the most important when evaluating IS graduates for entry-level positions. Employers have rated teamwork skills as more important than systems analysis and design, database, or programming skills (Van Slyke, Kittner and Cheney, 1998).

Collaborative learning is recognized as an effective teaching methodology in MIS programs in the United States. Through collaborative learning, students learn to take advantage of each team member's expertise and to experience first-hand the problems of coordinating a team effort (Goyal, 1995/1996). Studies have shown that collaborative learning leads to a higher degree of satisfaction with the learning process, to a greater motivation to learn, and to better performance (Flynn, 1992).

Aram and Noble (1999) argue that the traditional lecture approach does not adequately prepare students to understand and cope with the levels of ambiguity and uncertainty they will inevitably face when assuming entry level positions. Collaborative learning can be utilized in a number of class settings, and it is particularly appropriate for system development projects. Collaborative learning can also be effectively used for research projects and simulations. However, it is our intention to focus on how teachers can utilize techniques of collaborative learning in the teaching of case studies in the Management of IT course.

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COLLABORATIVE TEACHING

Instructors in a collaborative teaching environment can also realize some of the same advantages enjoyed in a collaborative learning environment. In particular, instructors can benefit from synergistic effects promoted by team dynamics. In addition, collaborative teaching can lead to a quicker development of best teaching practices.

Brabston, et al. (1999) proposed three models for collaborative team teaching:

1. The interactive model. Two or more instructors in front of the class at any one time.

2. The rotational model. Each member of the teaching team teaches in only that part of the course related to his or her area of expertise.

3. The participant-observer model. Each team member alternately takes the lead in teaching. The other team member primarily observes but also actively participates when appropriate.

Buffington and Harper (2001) have presented a fourth model for informal collaborative team teaching.

CASE STUDIES

Case studies are an important tool for teaching MIS concepts (Tracy and Waldfogel, 1997). Romm and Pliskin (2000) cite a study by Lee, Trauth and Farwell (1995) showing four major clusters of knowledge/skills required of MIS personnel in the upcoming decades:

1. Technical Specialties Knowledge/Skills: including operating systems, programming languages, database management systems, networks, telecommunications, etc.

2. Technology Management Knowledge/Skills: including issues such as where and how to deploy information technologies effectively for meeting strategic business objectives.

3. Business Functional Knowledge/Skills: including how to re-engineer business processes before the adoption of a new information system to produce maximum benefit from the system.

4. Interpersonal and Management Knowledge/Skills: which relate to the "boundary-spanning" role of IS personnel. This role requires IS professionals to master interpersonal skills such as selling, negotiating, leading, and counseling.

Romm and Pliskin (2000) note that of these four skills, three of them—technology management, business knowledge, and interpersonal skills—are not the traditional "hard skills" associated with an IS education, but rather can be classified as "soft' skills because they emphasize an understanding and ability to work with people rather than machines. Romm and Wong (1997) persuasively argue that the best way of teaching these soft skills is through the use of case studies.

Case studies are routinely used in a number of MIS courses. In a content analysis of 34 electronic commerce course syllabi, Sendall (1999) found that 44 percent of e-commerce classes were incorporating case studies as part of the curriculum.

Our focus is on the IT management course at the undergraduate level. We believe that this course is critically important to the MIS major, and we share the surprise of O'Hara and Stephens (1999), who found that this course is not universally required at AACSB-accredited schools. In their study, O'Hara and Stephens content analyzed 39 undergraduate syllabi of the IT management course. They found that the most common assessment method of students in this course were exams, quizzes, case study analyses, research papers or topic studies, computer-based projects, reports, and assignments. Of the 39 courses, only 51 percent utilized case studies. Further, case analyses accounted for only 16 percent of the grade, on average.

TEACHING CASE STUDIES THROUGH COLLABORATIVE LEARNING

Case studies can be taught with many different methodologies. Romm and Mahler (1991) describe five methodologies:

1. **Individual processing**. Students prepare for cases as individuals.

2. **Chronological group discussion**. Each case is presented via a team (and instructor) with the team intact throughout the interactive discussion.

3. **Simultaneous group discussion**. Each case is first discussed in sub-units, which later recombine as one large group.

4. **Chronological group dramatization**. Cases are dramatized with the all students serving either as actors or audience.

5. **Simultaneous group dramatization**. Students first break into sub-units which later recombine for case dramatization.

Each of these methodologies has its virtues, and each involves a certain amount of active learning. Annette Jones (2000) summarizes the argument for active learning:

> Active learning is based on the assumption that learning is by nature an active undertaking, and that different people learn in different ways (Meyers & Jones, 1993); it presumes that students learn best by doing. Active learning provides opportunities for students to talk and listen, read, write and reflect on course content through problem-solving exercises, small group discussions, simulations, case studies and other activities. Biggs (1999) also suggests that active engagement in the learning process encourages the less academic student to employ high-level engagement techniques such as theorization, reflection, application, which are more naturally adopted by the more academic student even if the teaching method is more passive.

We believe that one of the greatest strengths of teaching cases is the flexibility which they provide the instructor. A teaching case allows an instructor to choose the level of depth for discussion of a topic, as well as which topics, theories, and practices are discussed. While many teachers have developed their own pedagogical methods for teaching cases, there is no generally accepted prescription for one "right" way to teach cases.

As we continue to sharpen our teaching skills, several questions occur to those of us that teach cases in class. These questions generally center on inquiry as to whether our approach is the most appropriate. Generally, the purpose of case instruction is to provide a real-world example of the issues that organizations must face. Such exposure allows students the opportunity to identify issues and problems faced by a firm, to see vague, conflicting and often ill-structured business scenarios, to evaluate decisions made by the principles, to relate theory and concepts to a specific instance, and/or to make recommendations about what should be done based upon the student's own knowledge of the subject matter. As such, it is always our hope that the material will "come alive" for the students, generating high interest because of the fact that the issues are real and the companies are struggling to deal with them.

Teachers have often assigned cases to small groups and then have these students present their analysis to the class. We term this approach the "traditional case approach." However, some teachers who have been teaching cases for a while have developed his or her own particular method for conducting discussion of a case in class. We next sketch out the two methodologies we have most recently followed.

CASE STUDIES IN THE IT MANAGEMENT COURSE AT OUR UNIVERSITY

Each of the two authors of this study teaches the IT Management course. For the past four years, Instructor "B" teaches the course in the fall semester, and Instructor "A" in the spring. Both of us are proponents of active, collaborative learning in the teaching of cases. Both of us are interested in improving the effectiveness of our teaching. We have in the past informally discussed the teaching of cases in our respective classes, and have determined that a more formal approach to improving our teaching is in order.

As a result of our informal discussions we have developed a case study evaluation instrument. It was administered for the first time in spring 2001, and was subsequently administered at the end of the fall 2001 and spring 2002 semesters. Below, we describe the case teaching methodologies employed by each instructor in his respective section.

The Spring 2001 IT Management Class—Instructor "A"

Inspired by a workshop hosted by Larry K. Michaelsen (see Michaelsen, 1997-1998) prior to the beginning of the semester and disappointed by the negative feedback I received from my spring 2000 class, I made several sweeping changes to my case study methodology. In spring 2001, I divided my class of 22 students into seven teams. I consciously used principles of demographic

diversity as advocated by Trimmer, Van Slyke and Cheney [1999] in comprising the teams. I also ensured that there would be at least one "high-performing" student on each team. The teams endured throughout the semester. Although Michaelsen strongly advocates giving students all the class time they need to operate in groups, I purposefully composed teams whose members shared some free time at some point during the week. Further, I encouraged teams to conduct e-meetings to discuss case questions and to prepare the final report.

Five case studies were assigned at the beginning of the semester, with case discussion to begin on the fifth week of the semester. The cases came from Turban (1999). Text questions for each of the five cases were supplemented with my own questions.

On each case studies day, the period began with all students taking a short multiple-choice quiz on the details of the case. As advocated by Michaelsen in his workshop, students then immediately grouped together in their teams to discuss the quiz and to retake it, this time as a group quiz. The quizzes served to motivate students to read the case carefully.

I then led the discussion of the case questions in a question-answer format. Students frequently enlivened discussion with vigorous debate, as opposing points of view were enthusiastically presented. Invariably, discussion would fill the remainder of the class period, and the following class period was dedicated to tying up the loose ends of the case.

One week after the case discussion concluded, each team submitted a written analysis of the case. At the end of the semester, all students rated the relative contributions of their teammates. Students were forced to give at least one teammate more points than the rest, a practice advocated by Michaelsen. Altogether, the case work (quizzes and reports) was worth 25 percent of the course grade. Forcing students to allocate points unevenly led to several students having their course grade elevated or demoted a level.

The Fall 2001 IT Management Class—Instructor "B"

I assign a short, end-of chapter case at least one week in advance. I ask the students to read the case and answer the questions included in the text after the case. The students' written (word processed) answers are turned in to me *after* the case is discussed in class. I make it very clear that their work is not graded in terms or "right" or "wrong"; instead, I simply look at each paper to determine whether a thoughtful and justifiable response has been formulated. Once the cases have been turned in, I grade each student's work by assigning a check mark (✓) or minus (-) indicating whether I have deemed their work to be sufficient. Insufficient answers are relatively rare. Those receiving a check mark are given credit for all of the points for the assignment, while those who receive a minus receive no credit.

The written answers to the case questions serve as reference for the students as we discuss the case in class. Because of the availability of some written guidance, many of the students seem more at ease when they are called upon to contribute to the discussion. Also, I have noticed that students seem to be more prone to add to the discussion voluntarily when they have a well-formulated response in writing at their disposal.

I purposefully don't read the questions accompanying the case before the class discussion. Instead, I work up my own set of questions. My reasoning for this approach is that if I read the questions prepared for the case, I may actually constrain my own thoughts about the issues. I prefer to lead the discussion on what I feel is most important to emphasize. Only after I have exhausted my own list of questions for the class will I ask for responses to the given case questions if, in fact, we have not already covered the question in our discussion.

When I have a classroom that allows for rearranging the student seating, I ask the students to move their chairs into a circle. I also sit in the circle. This arrangement seems to improve the informality of the setting and is very conducive to group discussion.

Student comments from previous years of teaching cases through this approach, both formally through instructor evaluation reports and informally through discussion with individuals, have been very positive about the value of teaching cases in my classes. The anecdotal evidence for the success of the approach is strong but indirect.

The Spring 2002 IT Management Class—Instructor "A"

Buoyed by the success of the spring 2001 approach, I made only one important format change for the new semester. Because the most negative reaction to the approach in 2001 was to the requirement that forced

students to rate at least one member's contributions higher than the others, the requirement was dropped. Personally, I had serious reservations about the forcing requirement. In spring 2002, students did not evaluate teammates' contributions, but were free to drop noncontributing member's names from the written reports.

Another small change is that the case work dropped from 25 percent of the course grade to 23 percent. The only other apparent difference between the two semesters was the increase in class size—from 22 to 31. The number of teams increased from seven to ten.

Instrument Development and Administration

We developed a 12-item questionnaire administered in the spring semester in a collaborative fashion. The instrument itself (see Appendix A) is designed primarily as an exploratory tool to assess the effectiveness of our approach to teaching case studies. We believe a basic value of the case approach is in the teaching of soft skills (Romm & Pliskin, 2000), which led to the development of questions two and six. We also believe that the case approach is an excellent vehicle for teaching the Bloom's (1965) higher levels of learning, hence questions five, seven, eleven, and twelve. Because many of the changes in approach were inspired by Michaelsen (1997-1998), we developed questions four, eight, and nine. Question three was developed to assess students' perceptions of cases as agents of active learning, as suggested by Horgan (1999). Both instructors felt that cases were an important tool for teaching key issues, resulting in question one. Finally, we wanted to learn whether students preferred our new approach to the more traditional case approach, which accounts for question ten. The instrument concludes with two open-ended questions to explore issues not sampled by the first twelve questions.

Students anonymously evaluated the case studies at the end of each semester. A five-point Likert scale was used to evaluate the first twelve questionnaire items. A total of 22 students participated in the spring 2001 survey; 20, in fall 2001; and 26 in spring 2002. Because of the differences in teaching styles between the two instructors, some items were not applicable to Instructor "B's" class, specifically items 4, 6, 8, and 9. The results of this survey from each semester are shown in the tables below. Questions have been sorted from their original arrangement, to an order showing statements with which students most strongly agreed first.

Results

The results of the spring 2001 survey (Table 1) indicate a widespread satisfaction with the approach to case studies. Our perception is that students like this case methodology much more than they did in the spring 2000 class. Students seem to be particularly satisfied with cases as tools for making abstract MIS principles concrete. Not surprisingly, the question which received the least support concerned the forcing of uneven ratings—which led to some students receiving lower grades for the course than they otherwise would have. However, only two of the twenty-two students either disagreed or strongly disagreed with question nine.

Even the response to question ten was gratifying. This question, which ranked tenth in order of agreement, asked students to compare the spring 2001 approach with the traditional approach. Although three students rated the question neutral, not one of the twenty-two either disagreed or strongly disagreed with the statement.

In addition to the twelve questions above, students were also asked to respond to these two open ended questions:

1. What is the one thing you liked best about our approach to cases this semester?

2. If you could change one thing about our approach to cases this semester, what would it be? How would you change it?

As might be expected, a number of students rephrased one or more of the twelve statements to indicate the greatest strength. As proponents of active learning, we are pleased to note that six students indicated that active class discussions were the greatest strength of this approach to case studies.

Even responses to the "greatest weakness" question tended to be positive. In fact, five students indicated that there was no weakness with the 2001 methodology. Typical responses to this question included:

- More than five cases should be used (2)
- More in-class time should be allocated to cases (2)
- Class should be 75-minutes rather than 50 minutes

Complaints tended to be about the cases themselves rather than to the methodology:

TABLE 1
RESULTS OF CASE STUDIES QUESTIONNAIRE

Question Number	Question	Mean
7.	The cases provide students with a good means of applying information systems principles to real world situations.	1.36
1.	The cases brought out important points about managing information systems, such as the role of IS in a global economy, the potential of e-commerce, the role of IT in strategic planning, IT ethics, etc.	1.41
11.	The cases provide students with a good opportunity to synthesize; that is, identifying potential solutions to a case problem and choosing the most appropriate solution.	1.45
12.	The cases provide students with a good opportunity to exercise evaluation skills, i.e., appraising the extent to which particulars are accurate, effective, economic, or satisfying.	1.45
4.	Having both an individual quiz and a group quiz is a good idea.	1.55
2.	The cases are a good way of teaching "soft skills"; for example, interpersonal skills and management skills.	1.64
3.	Cases increase the likelihood of student participation in class discussion.	1.64
6.	Because much of the case work involved team work, the cases served as a good vehicle for applying principles of team management.	1.68
5.	Writing the case report aided in understanding the case principles.	1.73
10.	I prefer the approach to cases used this semester to the traditional case approach, i.e., when student teams are assigned the responsibility of presenting a particular case.	1.73
8.	Requiring students to assess relative contributions of teammates is a good way to motivate individual efforts.	1.77
9.	Requiring students to rate at least one teammate's contribution as better than average is a good idea.	2.41

TABLE 2
RESULTS OF CASE STUDIES QUESTIONNAIRE—FALL 2001

Question Number	Question	Mean
3.	Cases increase the likelihood of student participation in class discussion.	1.65
7.	The cases provide students with a good means of applying information systems principles to real world situations.	1.75
1.	The cases brought out important points about managing information systems, such as the role of IS in a global economy, the potential of e-commerce, the role of IT in strategic planning, IT ethics, etc.	1.85
5.	Writing the case report aided in understanding the case principles.	1.85
11.	The cases provide students with a good opportunity to synthesize; that is, identifying potential solutions to a case problem and choosing the most appropriate solution.	1.85
12.	The cases provide students with a good opportunity to exercise evaluation skills, i.e., appraising the extent to which particulars are accurate, effective, economic, or satisfying.	2.00
10.	I prefer the approach to cases used this semester to the traditional case approach, i.e., when student teams are assigned the responsibility of presenting a particular case.	2.10
2.	The cases are a good way of teaching "soft skills"; for example, interpersonal skills and management skills.	2.15
6.	Because much of the casework involved teamwork, the cases served as a good vehicle for applying principles of team management.	N/A
4.	Having both an individual quiz and a group quiz is a good idea.	N/A
8.	Requiring students to assess relative contributions of teammates is a good way to motivate individual efforts.	N/A
9.	Requiring students to rate at least one teammate's contribution as better than average is a good idea.	N/A

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- Cases should be more current (2)
- Cases should be more detailed

The open-ended responses tended to be similar to those of the Spring 2001 class responses. The responses to "What is the one thing you liked best about our approach to cases this semester?" included the dynamics of increased class discussion and the "real world" application of principles and theory. We note that these responses correlate to the two highest-scoring items in the questionnaire.

There was very little response to the second open-ended question, "If you could change one thing about our approach to cases this semester, what would it be? How would you change it?" Most students chose not to respond to this question or simply replied "Nothing." One student stated that there should be more cases. Another student stated that additional in-class time was needed to adequately discuss the cases.

A comparison between the spring 2001 and spring 2002 survey reveals that student attitudes are generally the same—students have a favorable reaction to this approach to using case studies. The responses to the open ended questions again were mostly favorable. Nine of the twenty-six students indicated that what they liked best about the approach was the class discussion. Another five indicated that the "group work" was the one thing they liked best.

There were no noticeable or consistent patterns to the responses to the question 14—what would you change. Indeed, five students omitted a response to this question. Three students indicated that the written reports were redundant, given the considerable in-class discussion. This conclusion could be attributed more to students' desire to lighten their work load than to actual increase in effectiveness. Two students suggested that we have more than five cases, and two suggested having fewer than five cases. Two students suggested more detailed cases and two suggested spreading the cases more evenly throughout the semester.

However, there are three differences between tables one and three that are worthy of note. Question 10 receives about the same level of favorable support in both semesters. However, the question moves from tenth position to fifth position in it rank order. Question number twelve shows the greatest change in mean

TABLE 3
RESULTS OF CASE STUDIES QUESTIONNAIRE—SPRING 2002

Question Number	Question	Mean
1.	The cases brought out important points about managing information systems, such as the role of IS in a global economy, the potential of e-commerce, the role of IT in strategic planning, IT ethics, etc.	1.73
7.	The cases provide students with a good means of applying information systems principles to real world situations.	1.81
11.	The cases provide students with a good opportunity to synthesize; that is, identifying potential solutions to a case problem and choosing the most appropriate solution.	1.96
4.	Having both an individual quiz and a group quiz is a good idea.	2.00
10.	I prefer the approach to cases used this semester to the traditional case approach, i.e., when student teams are assigned the responsibility of presenting a particular case.	2.00
6.	Because much of the case work involved team work, the cases served as a good vehicle for applying principles of team management.	2.08
3.	Cases increase the likelihood of student participation in class discussion.	2.12
2.	The cases are a good way of teaching "soft skills"; for example, interpersonal skills and management skills.	2.15
8.	Requiring students to assess relative contributions of team mates is a good way to motivate individual efforts.	2.15
12.	The cases provide students with a good opportunity to exercise evaluation skills, i.e., appraising the extent to which particulars are accurate, effective, economic, or satisfying.	2.15
5.	Writing the case report aided in understanding the case principles.	2.19
9.	Requiring students to rate at least one teammate's contribution as better than average would be a good idea.	2.89

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(0.70), moving from third to tenth. In all other cases, rank order is virtually identical.

The most striking difference between tables one and three is the uniform decline in favorability. In all cases, the level of satisfaction declined an average of 0.45, nearly half a point, ranging from a decline of 0.27 to 0.70. There are at least three factors which can account for this decline.

The first factor is that many of the students in the spring 2002 class, sixteen of the thirty-one, were also in my decision support systems class in fall 2001. I received the second lowest evaluations in my 17-year teaching career in this class. I believe that there was some carry-over from this relatively negative experience in fall 2001 to the spring 2002 class.

A second factor is the increase in class size from 22 to 31, a forty-one percent increase. As Mostert and Sudzine have shown, larger class sizes have a negative effect on case discussions. The size of the classroom did not change, and the ten groups were not able to meet without rubbing elbows with other members of the group.

I believe the most important factor, however, has to do with investment. In spring 2001, I was full of enthusiasm and energy with the new approach. I spent an entire class period early on in the semester describing how the new and innovative approaches we were taking to cases. Students eagerly provided input to fine-tuning the new approach. In spring 2002, however, I merely announced how we were approaching cases. Students did not feel they had the same investment in the approach as the previous semester.

LESSONS LEARNED

While Brabston, et al. (1999) proposed the three models for collaborative team teaching as described earlier in this paper, we would like to propose a fourth, less radical model. We suggest a more formal approach to procedures that good instructors are already doing informally. We propose that when two or more instructors are assigned responsibility for the teaching of a particular class using case studies as a teaching tool, that these instructors routinely perform the following steps:

1. Compile a list of generally agreed upon desired outcomes from teaching the cases.
2. Construct a questionnaire designed to evaluate the processes used to achieve the outcomes.
3. Administer the questionnaire at the conclusion of each semester.
4. Meet to discuss questionnaire results; identify methodologies that best meet desired outcomes.
5. Incorporate appropriate methodologies in future classes.

We believe that, while no "one-size-fits-all" when it comes to teaching methodologies, this process can only result in more effective teaching. A structured approach to evaluating methodologies from multiple instructors teaching a common course, as we have begun to do, should lead to a fine-tuning of individual teaching performance.

The case study format presents an excellent opportunity for instructors to collaborate in the determination of which methods and desired outcomes are most appropriate for a course. Based on the results of the spring 2002 questionnaire, Instructor "A" plans to reinstitute the policy of having students evaluate team members' performances, but not to force one member to be rated above the others. Additionally, Instructor "A" plans to enthusiastically sell students on this case approach at the beginning of the semester.

We give here one more example of our dynamic, collaborative methodology. Question three was ranked highest in terms of respondent agreement in the class taught by Instructor "B." The same question ranked seventh in both classes taught by Instructor "A." A possible reason for this difference may be that Instructor B's teaching style is less likely to promote discussion in class. If this is the case, Instructor B's students may have welcomed the opportunity to participate more broadly in discussion when the case studies were being taught, thus recognizing this important value of case teaching methodology.

In this paper, we have presented a combination of anecdotal and empirical evidence of the benefits instructors (and, ultimately our students) can derive from the above model. We believe this process can only result in more effective teaching. We believe that there is no one-size-fits-all teaching methodology, but we do believe a structured approach to evaluating our

methodologies, as we have begun to do, should lead to a fine-tuning of individual teaching performance.

Particularly given the AACSB's emphasis on assessment (Williams and Price, 2000), we believe that our model of collaborative teaching should serve as an excellent springboard for improving instruction. The responses to questionnaire items are valuable, but the discussion they provoke is invaluable. We do not believe it is enough to simply divide students into groups to discuss case studies. The devil is in the details.

For example, if many students indicate that "lively discussion" is a great strength of one instructor's approach, the positive response is not necessarily due to the content of the questions. Discussion of this item may reveal that lively student participation is a product of the instructor's serving more as a facilitator than as a leader. Discussion of these and other questions lead to synergistic improvements. Good teaching is certainly as much art as science, but it is an art enhanced by our collaborative procedure.

LIMITATIONS

The results of this questionnaire must be interpreted with caution. The instrument used in this study was constructed with elements which seemed relevant at the time. We plan to revise the instrument by grounding it more firmly in the literature and by following with validation tests. Another limitation is that apparent student satisfaction with the 2001 methodology does not ensure that the methodology was more effective. There could have been contaminating factors—the students may have found that pioneering a new methodology was a positive experience. Or the instructor may have done a more effective job for all aspects of the course—pulling the case study results up by the bootstraps, as it were. Nevertheless, the evidence does point to our collaborative case approach being an effective way of teaching cases.

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APPENDIX A

Case Questionnaire Name: _____

Use the scan tron to answer the first twelve questions below. Do not put your name on the scan tron. You must write your name above in order to receive the ten points extra credit.

A: strongly agree B: agree C: neutral D. disagree E. strongly disagree

1. The cases brought out important points about managing information systems, such as the role of IS in a global economy, the potential of e-commerce, the role of IT in strategic planning, IT ethics, etc.
2. The cases are a good way of teaching "soft skills"; for example, interpersonal skills and management skills.
3. Cases increase the likelihood of student participation in class discussion.
4. Having both an individual quiz and a group quiz is a good idea.
5. Writing the case report aided in understanding the case principles.
6. Because much of the case work involved team work, the cases served as a good vehicle for applying principles of team management.
7. The cases provide students with a good means of applying information systems principles to real world situations.
8. Requiring students to assess relative contributions of teammates is a good way to motivate individual efforts.
9. Requiring students to rate at least one teammate's contribution as better than average is a good idea. [Note: questions was reworded as "Requiring students to rate at least one teammate's contribution as better than average would be a good idea" in the spring 2002 survey.]
10. I prefer the approach to cases used this semester to the traditional case approach, i.e., when student teams are assigned the responsibility of presenting a particular case.
11. The cases provide students with a good opportunity to synthesize; that is, identifying potential solutions to a case problem and choosing the most appropriate solution.
12. The cases provide students with a good opportunity to exercise evaluation skills, i.e., appraising the extent to which particulars are accurate, effective, economic, or satisfying.
13. What is the one thing you liked best about our approach to cases this semester?
14. If you could change one thing about our approach to cases this semester, what would it be? How would you change it?

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